

Appl. No. 09/388,804
Amdt. dated 08/26/2004
Reply to Office Action of 05/26/2004

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (currently amended):

A method, ~~comprising~~ comprising:

switching data traffic having packets of data of a plurality of sizes between a first number of local area network (LAN) ports and a second number of wide area networks (WAN) links of a router resource; and

controlling utilization of ~~a~~ the router resource at ~~the~~ an interface between ~~a~~ the first number of local area network (LAN) ports and ~~a~~ the second number of wide area networks (WAN) links ~~links, the LAN ports providing packets of data having a plurality of sizes, the utilization by each LAN port being controlled according to~~ bandwidth availability of corresponding bundles of the WAN links assigned to each of the LAN ports and a switching capacity of the router resource.

2. (original):

The method of claim 1 wherein individual ones of the LAN ports are permitted to exceed their fair share of the switching capacity of the router resource if a current switching load due to traffic from all of the LAN ports is less than a maximum switching capacity for the router resource.

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3. (original):

The method of claim 1 wherein if a current switching load due to traffic from all of the LAN ports is equal to a maximum switching capacity of the router resource then those of the LAN ports that are attempting to utilize more than their fair share of the bandwidth availability or the switching capacity are throttled back.

4. (original):

The method of claim 3 wherein throttling back to LAN port comprises dropping packets inbound on that port at the packets' entry point to the router resource.

5. (currently amended):

A method, ~~comprising~~ comprising:

determining, at an entry port selected from one of a first number of local area network (LAN) ports of a router resource, whether or not to admit inbound traffic according to a fair allocation distribution scheme that allows traffic to be admitted according to bandwidth availability of a corresponding exit ~~port point~~ for the traffic selected from one of a second number of wide area networks (WAN) links of the router resource and a current utilization of total switching capacity of the router resource; and switching admitted inbound traffic having packets of data of a plurality of sizes from the entry port to the exit port of the router resource.

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6. (currently amended):

The method of claim 5 wherein the fair allocation scheme allows, traffic to be admitted so long as the bandwidth availability of the corresponding exit ~~point~~port exists.

7. (currently amended):

The method of claim 5 wherein the fair allocation scheme allows traffic to be admitted even if ~~a~~the exit port of the router resource associated with the traffic is exceeding an allocated amount of the total switching capacity of the router resource so long as the total switching capacity of the router resource has not been attained.

8. (currently amended):

The method of claim 7 wherein the fair allocation scheme allows traffic to be admitted so long as the bandwidth availability of the corresponding exit ~~point~~port exists.

9. (currently amended):

A routing resource comprising means for providing fair allocation of switching capacity among a number of input ports thereof, the ~~input ports providing routing resource switching~~ packets of data having a plurality of sizes, the fair allocation being provided according to output bandwidth capacity of output links associated with the input and total switching capacity utilization of the routing resource.

10. (original):

The routing resource of claim 9 wherein the fair allocation is maintained by throttling back those input ports which attempt to exceed the output bandwidth capacity of their associated

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output links or which attempt to utilize more than their allocated share operating at the total switching capacity.

11. (original):

The routing resource of claim 10 wherein throttling back comprises dropping packets at an ingress point of the routing resource.

12. (currently amended):

A router comprising means for communicatively coupling a first number of local area network (LAN) ports with a second number of wide area network (WAN) links, the LAN ~~ports providing router switching~~ packets of data having a plurality of sizes, the utilization by each LAN port being controlled according to bandwidth availability of bundles of the WAN links assigned to each of the LAN ports and a switching capacity of the router.

13. (previously presented):

The router of claim 12 wherein the router further comprises means for permitting individual ones of the LAN ports to exceed their fair share of the switching capacity of a current switching load due to traffic from all the LAN ports is less than a maximum switching capacity of the router.

14. (previously presented):

The router of claim 12 wherein the router further comprises means for throttling back those of the LAN ports exceeding their fair share of the switching capacity when a total switching

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load due to traffic from all of the LAN ports equal to a maximum switching capacity of the router.

15. (previously presented):

The router of claim 14 wherein throttling back a LAN port comprises dropping one or more packets inbound on that port at the packets' entry point to the router.

16. (currently amended):

Computer-readable medium having a sequence of instructions, the sequences of instructions, when executed by a processor, causing the processor to perform a method ~~comprising~~ comprising:

determining, at an entry ~~point~~ port selected from one of a first number of local area network (LAN) ports of a router resource, whether or not to admit inbound traffic according to a fair allocation distribution scheme that allows traffic to be admitted according to bandwidth availability of a corresponding exit ~~port~~ point for the traffic selected from one of a second number of wide area networks (WAN) links of the router resource and a current utilization of total switching capacity of the router resource; and
switching admitted inbound traffic having packets of data of a plurality of sizes from the entry port to the exit port of the router resource.

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17. (currently amended):

The computer-readable medium of claim 16 wherein the fair allocation scheme allows traffic to be admitted so long as the bandwidth availability of the corresponding exit port point exists.

18. (currently amended):

The computer-readable medium of claim 16 wherein the fair allocation scheme allows traffic to be admitted even if ~~a~~ the exit port of the router resource associated with that traffic is exceeding an allocated amount of the total switching capacity of the router resource so long as the total switching capacity of the router resource has not been attained.

19. (currently amended):

The computer-readable medium of claim 18 wherein the fair allocation scheme allows traffic to be admitted so long as the bandwidth availability of the corresponding exit port point exists.

20. (previously presented):

The computer-readable medium of claim 16 wherein the fair allocation is maintained by throttling back those input ports which attempt to exceed the output bandwidth capacity of their associated output links or which attempt to utilize more than their allocated share operating at the total switching capacity.

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21. (previously presented):

The computer-readable medium of claim 20 wherein throttling back comprises dropping packets at an ingress point of the routing resource.

22. (previously presented):

The computer-readable medium of claim 16, wherein the sequences of instructions is embodied on one of a floppy disk and a CD-ROM.

23. (previously presented):

The computer-readable medium of claim 16, wherein the sequences of instructions is embodied in electronic signals transported through a communication medium.